

Massachusetts Urban Forestry Program

The Citizen Forester

April, 2008 No. 124

This month's lead article is an excerpt from a report prepared by DOVETAIL PARTNERS INC. a 501(c)(3) nonprofit corporation that works to foster sustainability and responsible behavior by providing authoritative information about the impacts and trade-offs of environmental decisions, including consumption choices, land use, and policy alternatives.

To view this document in its entirety with bibliography follow the link below to The January 2008 Outlook Newsletter published by DOVETAIL PARTNERS, INC.

www.dovetailinc.org/reports/pdf/DovetailUrban0108ig.pdf

Urban Tree Utilization and Why It Matters

By: DR. Steve Bratkovich, DR. Jim Bowyer, Kathryn Fernholz, & Alison Lindburg

Introduction

Most analyses related to U.S. timberland and timber production focus on forest land that is producing, or is capable of producing, more than 20 cubic feet per acre per year of industrial wood crops under natural conditions, is not withdrawn from timber use, and is not associated with urban or rural development. It's quite reasonable to focus our research and attention on these commercial forest lands due to their size and economic, social and environmental importance. However, there are other categories of forested areas in the U.S. that tend to "fall through the cracks," and that are rarely researched or discussed regarding their potential to provide wood-based products. Urban forests of the United States are such an example.

It's estimated that today there are nearly 4 billion urban trees in the U.S., with another 70 billion trees growing in metropolitan areas. As urban land in the U.S. expands, so do the urban forests. Urban land in the lower 48 states increased from 2.5% of total land area in 1990 to 3.1% in 2000, an area about the size of Vermont and New Hampshire combined. Researchers from the U.S. Forest Service project that urban land in the coterminous U.S. will nearly triple in size to over 8% by 2050, an area larger than the state of Montana (Nowak 2005).

Utilization of urban trees for wood and paper products is still in its infancy. However, the idea is drawing more attention from researchers, community officials, arborists, tree care firms, and wood-using industries including bio-energy producers.

Questions that often arise when discussing the potential for urban tree utilization include: How much wood is in our urban areas? What are the major constraints to utilizing this wood? Are there viable examples of urban tree utilization industries? Can bio-energy play a role in urban tree utilization? This report addresses these questions and concerns.

How Much Wood is in Our Urban Areas?

Various researchers have addressed this question in different ways since the early 1990s. Following are different perspectives on the volume of urban trees removed on an annual basis from across the U.S.

In 1994 the NEOS Corporation of Lakewood, Colorado, conducted the first national inventory of urban tree residues. A mail and telephone survey was conducted of “generators” of urban tree residues. The list of generators included commercial tree care firms, municipal/county park and recreation departments, municipal tree care divisions, county tree care divisions, electric utility power line maintenance, landscape maintenance/landscaper/nursery firms, and excavator/land clearance firms. Results of the study, when extrapolated across the U.S., indicated an annual urban tree residue volume—chips, logs, tops, brush and stumps—of over 192 million cubic yards. This figure converts to over 38 million green tons (or about 25 million tons dry basis) of residue. Interestingly, survey respondents said that 70% of the wood residue was either given away, land filled, or left on site, with only 25% reported as recycled or sold/used for a product. Since the survey included firms that work in rural areas as well as urban (electric utility power line maintenance for example), the results could be interpreted as including more than just urban or metropolitan area trees.

A 2003 report issued by the USDA Forest Service, Forest Products Laboratory, estimated that in 2002, urban wood residues in the municipal solid waste stream totaled 14.8 million metric tons (16.2 million short tons of chips, logs, stumps, tree tops and brush). About 8.5 million metric tons were recovered, mainly for compost and mulch. Of the remaining 6.3 million metric tons, 1.5 million were sent to combustion facilities, 1.6 million were deemed unusable, and 3.2 million metric tons were available for further processing (in other words, “good wood” seeking a market). Interestingly, the total of 14.8 million metric tons was greater than the total estimated weight of timber harvested from U.S. National Forests during this same time period.

A report from the U.S. Environmental Protection Agency (EPA) (2007) estimated that in 2006 “yard trimmings” in the municipal solid waste (MSW) stream totaled 32 million tons. This estimate includes grass clippings, leaves and other non-woody residue. The urban tree and woody residue portion of the yard trimmings amount is estimated at nearly 19 million tons.

A different approach to estimating the volume of urban trees removed on an annual basis is to look at urban tree inventories and apply an estimate of annual removal rates. This method eliminates the need to depend on survey respondents to quantify how much residue they divert from, or contribute to, the municipal solid waste stream.

Nowak and Crane (2002) reported on carbon storage and sequestration by urban trees in the U.S. Using high resolution radiometer data to estimate urban tree cover, and combining this information with biomass equations adjusted for trees growing in an urban setting, an estimate of carbon storage in urban trees in the coterminous U.S. was obtained. Using this method, urban trees were estimated to contain over 704 million metric tons of carbon (dry weight basis). Conversion of Nowak and Crane’s carbon storage data to above-ground ‘green’ biomass of living trees results in an estimate of over 1.7 billion tons of ‘standing biomass’ in our urban communities (lower-48 states)⁵. At a conservative one percent annual removal rate for urban trees (due to storms, pest attacks, construction, etc.), the standing urban tree biomass removed on a yearly basis is estimated at approximately 17 million tons.

Consequently, regardless of the method used, the volume of urban tree removals is a substantial number. The estimates range from over 16 to 38 million green tons (short tons) per year. As mentioned, even the lower range of the estimate is comparable to total annual harvests from America's National Forests. By including metropolitan area trees, and arguably most of these trees are more rural than urban by

definition, the volume would increase by at least a factor of 17 in the Nowak and Crane example. However, it is the metropolitan areas that will absorb the majority of the predicted urban growth during the next half-century.

What are the Major Constraints to Utilizing Urban Wood?

There is a long list of reasons that urban trees aren't always utilized to their best and highest value. Some of these reasons or constraints are justified, others fall into more the excuse category. Here's a quick look at some of the more common constraints.

Wood Quality – Urban trees are typically more open grown than trees growing in a natural forested setting; this results in shorter trunks and more branches. Throw in the possibility of imbedded materials—nails, cables, and other hardware—and many timber buyers are frightened away. In addition, among both urban wood generators and many in the traditional wood products industry, there is a perception that urban trees have 'zero' value.

Wood Quantity – With the exception of storm events or a large pest outbreak, most *individual* urban tree removal projects generate small quantities of wood. Most existing wood industries can't afford to scurry around town picking up one or two logs. Also, many urban tree projects involve pruning (branch removal) and other maintenance activities rather than main stem (trunk) removal.

Markets – Most timber sales in rural forests involve multiple tree species. This 'product variety' enables a range of potential buyers and markets to be interested in the sale. In urban areas, especially after an invasive species attack (i.e., emerald ash borer or Dutch elm disease), the availability of a single species or two is more the norm, limiting the number of potential buyers, utilization options, and markets. Urban tree removals also generate many species that are not conventionally valued in traditional timber markets.

Inventories – Tree inventories in urban areas often lack the scope and specificity (such as log volume and grade) needed by wood-using industries to set-up an effective utilization program.

Utilization Plans – In addition to tree inventories lacking specificity for utilization objectives, most urban forestry programs have weak or non-existent utilization plans. This lack of planning includes a poor understanding of local markets and potential products, a reluctance to engage timber buyers and existing wood-using industries, and a general lack of knowledge of how to create a viable utilization plan.

Community Support – Community leaders are often short-staffed and struggling with tight budgets. Asking them to develop and/or incorporate new ideas for how they dispose of urban tree removals is often difficult, even if it will result in savings for the city. In many cases, communities don't care what happens to the wood, as long as it is removed from public areas in a timely manner.

When the added expense of working in an urban environment is considered in the light of a general lack of enthusiasm by many wood industry firms, the constraints of utilizing the urban wood resource seem daunting. Surprising to many, however, is that a movement is afoot to minimize these constraints, and develop viable markets for wood from our urban forests. As more cities are creating strategies to "green" their communities, urban tree utilization planning has the potential to be included in these plans.

Are there Examples of Urban Tree Utilization Industries?

The short answer is, yes, and their numbers are growing. Most of the firms that utilize urban trees are small (less than 5 employees), or the firms are part of a larger business (ex: a large tree service firm that creates a wood utilization business line). The green building movement, storm related tree cleanup, and pest outbreaks are examples of opportunities for urban tree utilization.

Today, a large number of businesses involved in urban tree utilization are focused on lumber and related value-added businesses (furniture, flooring, cabinets, etc.).

Horigan Urban Forest Products in Skokie, Illinois, a suburb of Chicago, is one example of a company focused on lumber and value-added products. Bruce Horigan started in the tree service business in the 1970s and has observed many years of wasted opportunities. He acknowledged in a recent *Sawmill and Woodlot* magazine article (Bratkovich 2008) that he tired of seeing high quality logs with lumber potential dumped at a landfill. Even after landfilling of logs was outlawed, Horigan observed saw log quality material either chipped or bucked into firewood. In 2003 he took his business in a different direction. Along with his wife Erika, Horigan Urban Forest Products was founded. Using a portable band saw and two small dry kilns, the Horigans began milling and drying lumber from logs sourced from tree service companies, municipalities and homeowners. Today, their two lumber warehouses stock hardwood lumber that caters to furniture makers, flooring and remodeling contractors, and individual homeowners and hobbyists. Additional information about Horigan Urban Forest Products can be found at <http://www.horiganufp.com/>.

Two other examples of small but innovative urban tree utilization businesses:

East and West Coast Urban Tree Utilization Businesses CitiLog, based in Pittstown, New Jersey, has built its urban tree utilization business model on contracted services. Sourcing logs from Manhattan and surrounding urban areas, CitiLog contracts with the Pennsylvania Amish to saw and dry the lumber from its urban logs, as well as craft furniture and other value-added products. Often, the finished products are purchased by the original source of the logs. CitiLog promotes this as their “full circle recycling” program. For example, a recent project with the University of Pennsylvania took trees removed from campus that will be returned to the school as finished bookcases and tables. *For more information see* <http://www.citilog.com/>.

The business model of **Pacific Coast Lumber** in San Luis Obispo, California, stands in contrast to the CitiLog model. Although both firms source their raw material from urban trees, Pacific Coast Lumber employees mill and fabricate various products including small out-buildings, sheds, and cabins, as well as Adirondack furniture, benches, and picnic tables. Also, custom milling accounts for about 30% of their business. Don Seawater of Pacific Coast Lumber said, “Our sales have increased since we started in 1998. However, not all urban wood is useable for milled products. Renewable energy is the next product market we’re looking at.” *For more information see* <http://www.pacificcoastenterprises.com/>.

Sometimes a disaster such as a major storm or pest outbreak is the impetus for creating an urban tree utilization program. The discovery of the exotic emerald ash borer (EAB) in Detroit in 2002 is a case in point. Many small businesses including sawmilling operations were started to deal with the volumes of ash wood being removed as the EAB moved across the urban and rural landscape. Federal and State dollars were critical in jump-starting some of these firms. The Southeast Michigan Resource Conservation and Development Council played a key role in working with startup businesses, administering grant programs, developing educational and training programs, and, in general, promoting utilization efforts. The Council’s “Ash Utilization Options Project” has been an extremely helpful program and serves as an outstanding model for other urban areas (<http://www.semircd.org/ash/>). Also, the discovery of EAB in Michigan, and subsequently in seven other states (plus Ontario), highlights the importance of communities being pro-active and developing urban tree utilization programs before a crisis occurs.

An interesting spin-off of the EAB utilization effort in Detroit as well as other projects around the country is the interest from the green building industry in using reclaimed urban wood. Community recycling and reuse centers, LEED projects, and other green building efforts have provided new markets for lumber and

related products from urban trees. As an example, the ReUse Center in Ann Arbor, Michigan, stocks locally produced lumber from urban sawmills (see <http://urbanwood.org/>). Also, CitiLog in New Jersey has supplied lumber to commercial LEED green building projects. In the future, the green building sector will likely continue to grow as a market for urban wood products.

As illustrated in the above examples, urban tree utilization efforts are alive and well. Although the amount of wood being utilized for lumber and related products is still relatively small, the potential is great. Another industry in a position to use large volumes of urban tree biomass can be found in the bio-energy sector.

How Does Urban Tree Utilization Relate to Bio-Energy?

An example of the synergy between bio-energy and urban trees can be found in downtown St. Paul, Minnesota. Located about one-half mile from the State Capital building, District Energy St. Paul operates a combined heat and power plant serving the commercial, industrial and residential downtown area. The energy output of the steam powered turbine is 25 MW; “waste” energy created in the process is used to heat the downtown area. Completed in 2003, the plant was built as a multi-fuel unit, capable of burning coal, natural gas, or biomass in the form of woodchips. In 2005, 60% of the fuel used to fire the heat and power plant was wood chips. The long-term goal is to have 75% or more of the fuel for the plant to be biomass. Currently, the plant consumes up to 300,000 tons of wood chips per year, primarily sourced from urban tree removals. Mike Burns, Project Engineer for District Energy noted, “We’re using a clean, renewable resource in urban wood. It’s enabled us to reduce CO2 emissions by 280,000 tons per year.”

To put the District Energy St. Paul example in perspective, consider the earlier referenced estimate of 17 million tons of urban tree removals per year in the lower-48 states. With District Energy’s 25 MW plant using upwards of 300,000 tons of wood per year, the volume of urban tree removals—17 million tons annually—could theoretically support 57 similar size bio-energy plants! Of course, all 17 million tons of the annual removals will not be available for use, and sighting an energy plant the size of District Energy in other urban areas may be challenging. However, the sheer magnitude of the “potential” of urban tree removals to generate renewable energy should not be overlooked. Many of the constraints noted above to urban tree utilization (tree quality and quantity, single species markets, etc.) are greatly diminished when “energy” is the final product. The fact that an infrastructure—including trained workers—already exists in urban areas to remove trees and convert them into chips is a plus for a local energy market.

In addition, urban trees are not the only urban wood resource that can be tapped for energy. When combined with construction and demolition wood, discarded wood pallets and related shipping containers, and other forms of recyclable urban wood, the potential for urban areas to serve as local wood baskets (or supplement existing wood baskets) for industrial energy producing applications is compelling.

The Bottom Line

Urban areas, and adjacent “metropolitan land”, will continue to grow throughout the United States, consequently expanding the size of the urban forest. The estimated volume of urban trees removed annually varies by study, time frame, and method of analysis; regardless, the total volume is significant. Urban forests contain a wood fiber resource that is in its infancy in being utilized for wood and paper products; however, based on the examples provided above, the future looks promising. More attention—including research, education, and technology transfer should be given to this resource in light of its ability to provide useful products including lumber and bio-energy, conserve landfill space, and generate economic opportunities.

Dovetail Partners is a 501(c)(3) nonprofit corporation that fosters sustainability and responsible behaviors by collaborating to develop unique concepts, systems, models and programs.

DOVETAIL PARTNERS, INC.
528 Hennepin Ave, Suite 202
Minneapolis, MN 55403
Phone: 612-333-0430
Fax: 612-333-0432

INFO@DOVETAILINC.ORG

<http://www.dovetailinc.org/>

Picks and Shovels

For more related information

Webcast: Harvesting Urban Timber April 17th Sam Sherrill, Associate Professor, University of Cincinnati U.S. Forest Service Wood Education Resource Center -
www.na.fs.fed.us/werc/events/urban_wood_utilization.pdf
10:00 a.m. Central / 11:00 Eastern

DCR Bureau of Forestry & Fire, Marketing and Utilization Program assists in developing and evaluating business opportunities in every phase of wood product manufacture and recycling.
www.mass.gov/dcr/stewardship/forestry/utilmark/index.htm

U.S.D.A. Forest Service has released a valuable publication on utilizing municipal trees with examples from around the country, www.na.fs.fed.us/spfo/pubs/misc/umt/index.htm

The Urban Forest Ecosystem Institute urban wood website promotes the development of markets for urbanwood. As the urbanwood industry grows, communities will not only realize savings in greenwaste disposal costs but may soon obtain revenues. www.ufe.org/urbanwood/index.html

Growing Greener

City of Fall River

The Fall River Street Tree Planting Program, Inc is a nonprofit all volunteer organization that has been working to promote tree planting, tree maintenance and the benefits of trees in Fall River since 1996. Accomplishments include: the completion of a city-wide tree survey, publication of a park tree identification guide, a tree management plan, major tree plantings in three parks and at the city high school, Tree City USA designation and the implementation of a tree steward program. Mass ReLeaf Ministry provided support and funding for the three parks and high school tree plantings along with the First Congregational Church and the Council of Churches. The Fall River Street Tree Planting Program was also instrumental in promulgating the planting of diverse species of trees other than linden and maples plus the inclusion of a line item in the city budget for tree care after a hiatus of a dozen or more years.

Support from a Challenge Grant from the Ma. Department of Conservation and Recreation Urban & Community Forestry Program helped to secure the services of a consultant John Campanini, urban forester and arborist. The following programs to be implemented in the spring of 2008 were designed by Mr. Campanini to strengthen public advocacy for trees: Tree steward education course, champion tree program, free trees for Arbor Day, set-back tree planting model and skill-building workshops for city employees. To learn more about the Fall River Street Tree Planting Program visit their website at www.fallrivertrees.org.

Growing on Trees

DCR's Premier Urban and Community Forestry Event, Tree City USA Forum and Awards

Ceremony for the 90 Massachusetts Communities that successfully applied for Tree City USA status will be held on Thursday May, 1st from 9am to 3pm at DCR's Elm Bank Reservation in Wellesley. Sponsored by: Roche Brothers Grocery Store, Wellesley Natural Resources Commission, USDA Forest Service and the National Arbor Day Foundation, for more information on the event or becoming a Tree City USA contact Alan Snow at 413-577-2966 or alan.snow@state.ma.us

Important Reminder about Tree City USA Program Requirements – In order to receive the Tree City USA award, your community must conduct an Arbor Day ceremony and issue an Arbor Day proclamation each year. We urge you to use this requirement to the advantage of your community forestry programs by conducting a timely and well considered ceremony such as a tree planting at a local school in conjunction with the reading of the proclamation by local municipal leaders. This is just one of the many possibilities for recognizing and celebrating Arbor Day and bringing attention to the community forest and your efforts to protect and manage it with care

Donate To Plant Trees In The Bay State!

The Mass ReLeaf Trust is a fund within the Conservation Trust of the Massachusetts Department of Conservation and Recreation (DCR) designed to foster partnerships between business, government, and nonprofit groups for the planting and care of public trees to improve our community environments and overall quality of life. Funding is actively sought from public and private sources for the Mass ReLeaf fund. The Mass ReLeaf fund is managed by the DCR's Urban and Community Forestry Program. All funds held in the Trust are distributed through urban forestry grants to municipalities and not for profits working in our communities to plant and care for public shade trees. If you would like to donate to the Trust, please send a check made out to the Commonwealth of Massachusetts (with a notation for Mass ReLeaf) to DCR, Attn: Eric Seaborn, 251 Causeway Street, 6th Floor, Boston, MA 02114. Thanks for your support!

Newly Updated Publications from UMass Extension Available Online at

www.umassextensionbookstore.com: Professional Management Guide for Insects, Diseases and Weeds of Trees and Shrubs in New England, Planting and Maintaining Sustainable Landscapes: a guide for public officials and the green industry, Cultural Practices Problems of Trees and Shrubs in the Landscape

Engineered Soils, Trees and Stormwater Runoff: The UC Davis parking lot research project looks into the ability of Green Infrastructure to reduce Stormwater and the associated pollution from parking lots. www.fs.fed.us/psw/programs/cufr/products/psw_cufr686_UCDParkingLot.pdf

Why Shade Streets? The Unexpected Benefit

Research comparing streets with and without trees found that shaded roads require significantly less maintenance and can save up to 60% of repaving costs over 30 years. Read the latest research summary (www.fs.fed.us/psw/programs/cufr/products/cufr_673_WhyShadeStreets_10-06.pdf), and for other research information go to www.fs.fed.us/psw/programs/cufr.

Massachusetts Tree Warden's & Foresters Association Announces the Recipient of the George E.

Stone Award. The award was first created to honor the outstanding dedication of a MTWFA member, who has continually demonstrated strong commitment with many hours of volunteer service to the organization. Arthur "Jesse" Jeselonis Medford tree warden received the award at this year's annual meeting for his outreach efforts working with school children and other groups to promote Medford's tree canopy. <http://masstreewardens.org/index.html>

Patagonia Grants for Environmental Work makes grants available to organizations that identify and work on the root causes of problems and that approach issues with a commitment to long-term change. Supporting small, grassroots activist organizations with provocative direct-action agendas, working on multi-pronged campaigns to preserve and protect the environment. By working to help local groups working to protect local habitat, and think the individual battles to protect a specific stand of forest, stretch of river or indigenous wild species are the most effective in raising more complicated issues www.patagonia.com/web/us/patagonia.go?assetid=2927

On The Horizon

Defiant Gardeners: Making Gardens in Wartime: Tuesday April, 15 7:00-9:00 pm Hunnewell Building Lecture Hall Arnold Arboretum, 125 Arborway, Boston. Kenneth Helphand, FASLA Professor of Landscape Architecture University of Oregon Why do so many, when under duress, seek out the natural world or attempt to replicate it in a small patch of earth? In his book, Defiant Gardens, Kenneth Helphand has collected stories and photos, documenting the visceral drive to plant a seed and nurture growth in the most unlikely places. He will share some of his research and images in this moving lecture. Call 617.524.1718 x160 to register

Up Coming Webcasts by the U.S. Forest Service and its partners:

Canopy Goal Setting April 16th UNRI Webcast - <http://www.unri.org/webcasts>
10:00 a.m. Central / 11:00 Eastern

Heading Towards Sustainability- Part I: Agroforestry April 17th Brad Riphagen, Field Coordinator, Trees Forever (Marion, IA) Richard Straight, Lead Agroforester, USDA Ntl. Agroforestry Ctr. (Lincoln, NE) ACT Webcast - http://actrees.org/site/stories/act_webcast_series.php Noon Central / 1:00 p.m. Eastern

New England Wild Flower Society's Nasami Farm's Open House, Meet the New Propagator, Matt Kunze, on Sunday, April 20th beginning at 1 p.m.

Nursery is open April 17 - June 8, 2008 Thursdays through Sundays, 10-5, 128 North Street, Whately, MA, located just 2 miles from I-91, an hour north of Hartford, Connecticut. America's largest native plant education program is proud to present a series of FREE weekly lecture/demonstrations at Nasami Farm, the Society's native plant nursery. Native plant experts present great gardening tips and techniques and afterwards can be on hand to help with selections. No reservations required. Programs and parking are free, for more information call 413-397-9922.or go to www.newenglandWILD.org.

Northern New England Low Impact Development (LID) Conference

Monday, April 21, 8:30 a.m. - 4:15 p.m. University of Vermont's Davis Center. Planners, Zoning Administrators, Select Boards, Road Foreman, Planning, Zoning and Conservation Commission Boards are invited to attend. Learn about how low impact development strategies reduce stormwater runoff, protect local waterways and reduce the environmental impact of development. Conference registration information can be found at www.fbenvironmental.com

DCR U&CF Program Challenge Grant Deadline for the spring round of Grant applications are due May 1st. More information on the grant program can be found at www.mass.gov/dcr/stewardship/forestry/urban/urbanGrants.htm

2008 National Conference on Urban Ecosystems Nature and the Network: Building a new framework for people and nature to work together May 28 - 30, 2008

Caribe Royal Hotel Orlando, Florida. Organized by American Forests the Conference will bring together members of the business, government and conservation communities, to solidify and expand partnerships, assess our progress and plan strategies for building communities of the future.

www.americanforests.org/conference

Species Spotlight

Magnolia acuminata

Cucumbertree Magnolia

Hardiness Zone 4

General Description: Native to New York and down through Georgia this fast growing deciduous tree can reach 50'-80' tall with a spread just as wide. Form is strongly pyramidal in youth... turning more open with wide spreading branches with age and medium-coarse in texture. The simple yellowish green leaves are arranged alternately are ovate 6"-12" long with an entire leaf margins and slightly pubescent with a cordate leaf base. Foliage turns a yellowish bronze in autumn. Fragrant greenish white flowers are 2.5"-3" long and generally hidden by foliage in late spring. Fruit is a showy elongated aggregate of follicles 2"- 3" long that looks like a cucumber and persists into the winter with red seeds exposed once fruit has dried. The ridged and furrowed bark is relatively thin and gray brown in color. Twigs emit a spicy odor when bruised and are reddish brown with vertical gray lenticels and U-shaped leaf scars.



Culture: Prefers full sun to partial shade and fertile, moist soil but can tolerate urban soil conditions. Prune after flower and for best results transplant from container grown or B&B stock, can be difficult to transplant.

Landscape Use's: Excellent specimen tree, or for park and street trees settings.

Liabilities: Thin bark makes it very susceptible to lawn mower and string trimmer damage limits sitting in high traffic urban areas.

Cultivars/Varieties; **var. subcordata** - Called "Yellow Cucumbertree", smaller variant, **'Butterflies'** - Hybrid with *M. denudata* reportedly produces the strongest yellow blooms of any cultivar, **'Elizabeth'** - Another cross with *M. denudata*, flowers, produced before leaf development, are colored light yellow and bear a light fragrance and is very cold hardy, **'Ultimate Yellow'**- A selection from Massachusetts, this plant offers 6" wide yellow blooms that shade green at the base.

For more information, see www.hort.uconn.edu/plants/m/magacu/magacu1.html



The Citizen Forester is made possible through a grant from the USDA Forest Service Urban and Community Forestry Program and the Massachusetts Department of Conservation and Recreation, Bureau of Forestry.

Subscribe? Unsubscribe?

You are receiving this email because you have requested to receive the Citizen Forester. If this is an error or you do not wish to receive this newsletter, please email

eric.seaborn@state.ma.us

If you have a topic or addition to the Citizen Forester newsletter, please let us know.

If you have questions about Urban and Community Forestry, contact:

Eric Seaborn, Coordinator (eric.seaborn@state.ma.us)

Alan Snow Community Forester, Central & Western Mass

alan.snow@state.ma.us

Bureau of Forestry

Department of Conservation and Recreation

251 Causeway Street, Suite 900

Boston, MA 02114

Deval Patrick, Governor

Timothy Murray, Lieutenant Governor

Ian Bowles, Secretary, Executive Office of Energy and Environmental Affairs

Rick Sullivan, Commissioner, Department of Conservation and Recreation

Jim DiMaio, Chief, Bureaus of Forest Fire Control and Forestry

Eric F. Seaborn

Program Coordinator

DCR Urban and Community Forestry

ISA NE # 6451A, MCA

617-626-1468

eric.seaborn@state.ma.us